U.S. SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM S-8 REGISTRATION STATEMENT

UNDER
THE SECURITIES ACT OF 1933

ACASTI PHARMA INC.

(Exact name of Registrant as specified in its charter)

Québec (Province or Other Jurisdiction of Incorporation or Organization) 2863 Not Applicable
(Primary Standard Industrial Classification) (I.R.S. Employer Identification Number
Code Number (if applicable) (if applicable)

545 Promenade de Centropolis Suite 100 Laval, Québec Canada H7T 0A3 (450) 687-2262

(Address and telephone number of Registrant's principal executive offices)

ACASTI PHARMA INC. STOCK OPTION PLAN ACASTI PHARMA INC. EQUITY INCENTIVE PLAN (Full title of the plans)

CT Corporation System 111 Eighth Avenue, New York, New York 10011 (212) 894-8700

(Name, address, (including zip code) and telephone number (including area code) of agent for service in the United States)

Copies to:

Janelle D'Alvise Acasti Pharma Inc. 545 Promenade de Centropolis, Suite 100 Laval, Québec Canada H7T 0A3 (450) 687-2262 Jason Comerford Osler, Hoskin & Harcourt LLP 620 Eighth Avenue – 36th Floor New York, New York 10018 (212) 867-5800

| Large accelerated filer □ Non-accelerated filer □ (Do not check if a smaller reporting company) If an emerging growth company, indicate by check mark if the registrant has elected not to use the complying with any new or revised financial accounting standards provided pursuant to Section 7(| Emerging gr | filer prting company rowth company |
|--|---|---|
| If an emerging growth company, indicate by check mark if the registrant has elected not to use the | Emerging gr | |
| | e extended transition | rowth company |
| | | |
| CALCULATION OF DECICED ATION FEE | | |
| Title of each class of securities to be registered Tegistered CALCULATION OF REGISTRATION FEE Proposed maximum offering price registered per share of the control of the c | Proposed maximum aggregate offering price | Amount of |
| Common Shares, without nominal or par value 1,415,664(1) US\$0.5303 (2) U | JS\$750,726.62 | registration fee US\$93.47(2) |
| | S\$4,143,801.72 | US\$515.9(3) |
| | S\$4,894,528.34 | US\$609.37 |
| Represents 1,415,664 common shares of the Registrant that may be granted under the Regist addition, pursuant to Rule 416(a) under the Securities Act of 1933, as amended (the "Securities registers such additional common shares as may be offered or issued under the SOP to preve dividends, or similar transactions which result in an increase in the number of the outstanding awards. For the purposes of computing the registration fee only. Pursuant to Rules 457(c) and 457(h) Maximum Offering Price is based upon the average of the high and low prices per share of the NASDAQ Stock Market on September 18, 2018. Estimated solely for the purpose of calculating the registration fee in accordance with Rule 4 the weighted average exercise price of the options outstanding under the SOP of Cdn\$1.32 at U.S.\$0.7697, the Bank of Canada daily exchange rate for the Canadian dollar on September | ies Act"), this Regis nt dilution from stor g common shares is of the Securities ac ne common shares a 57(h) under the Sect t an exchange rate of | stration Statement also ock splits, stock ssuable pursuant to ct, the Proposed as reported on The curities Act based upon |

INFORMATION REQUIRED PURSUANT TO GENERAL INSTRUCTION E TO FORM S-8

Pursuant to General Instruction E of Form S-8, the Acasti Pharma Inc. (the "Registrant") is filing this Registration Statement with the Securities and Exchange Commission (the "Commission") to register an additional 5,494,209 common shares of the Registrant under the Registrant's Stock Option Plan, dated October 8, 2008 and most recently amended on June 8, 2017.

Pursuant to General Instruction E, the contents of the Registrant's Registration Statement on Form S-8 (File No. 333-191383) filed on September 25, 2013 are hereby incorporated by reference into this Registration Statement, except as revised herein.

PART II

INFORMATION REQUIRED IN REGISTRATION STATEMENT

Item 3. Incorporation of Documents by Reference

The Registrant hereby incorporates by reference into this Registration Statement the following documents previously filed with the Commission pursuant to the Securities Exchange Act of 1934, as amended (the "Exchange Act"):

- 1. the Registrant's Annual Report on Form 20-F for the fiscal year ended March 31, 2018;
- 2. each of the Registrant's Report of Foreign Private Issuer on Form 6-K furnished to the Commission on April 2, 2018, April 24, 2018 (two reports), April 27, 2018, May 9, 2018, May 14, 2018, June 5, 2018, July 2, 2018, August 1, 2018, August 14, 2018 (Film No.: 181014206), August 29, 2018 and September 18, 2018; and
- 3. the description of the Registrant's common shares set forth in its registration statement on Form F-1 (File No. 333-220755) filed with the Commission on September 29, 2017 and declared effective on December 19, 2017 and the Registrant's Form 8-A filed with the Commission on January 4, 2013, including any amendment or report filed for the purpose of updating that description.

In addition, all documents subsequently filed by the Registrant pursuant to Section 13(a), 13(c), 14 or 15(d) of the Exchange Act prior to the filing of a post-effective amendment to this Registration Statement which indicates that all securities offered hereby have been sold or which deregisters all securities covered hereby then remaining unsold, shall be deemed to be incorporated by reference in, and to be part of, this Registration Statement from the filing date of each such document.

Any statement, including financial statements, contained in a document incorporated or deemed to be incorporated by reference herein shall be deemed to be modified or superseded for purposes of this Registration Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Registration Statement. Unless expressly incorporated into this Registration Statement, a report furnished on Form 6-K prior or subsequent to the date hereof shall not be incorporated by reference into this Registration Statement.

Item 4. Description of Securities

Not applicable.

Item 5. Interests of Named Experts and Counsel

Not applicable.

Item 6. Indemnification of Directors and Officers

Directors' and officers' liability insurance has been purchased for the benefit of the directors and officers of the Registrant, to back up the Registrant's indemnification of them against liability incurred in their capacity as directors and officers, subject to certain limitations under applicable law.

In accordance with the provisions of the *Business Corporations Act* (Québec), the by-laws of the Registrant also provide that the Registrant will indemnify a director or officer, a former director or officer, or an Individual who acts or acted at the Registrant's request as a director or officer or an individual acting in a similar capacity of another entity, and such person's heirs and legal representatives, against all costs, charges and expenses, including an amount paid to settle an action or satisfy a judgment, reasonably incurred by such individual in respect of any civil, criminal, administrative investigative or other proceeding in which the individual is involved because of that association with the Registrant or other entity, *provided* however that the Registrant shall not so indemnify an individual unless the individual (i) acted honestly and in good faith with a view to the best interests of the Registrant or, as the case may be, to the best interests of the other entity for which the individual acted as a director or officer or in a similar capacity at the Registrant's request, and (ii) if the matter is a criminal or administrative action or proceeding that is enforced by a monetary penalty, had reasonable grounds for believing that the individual's conduct was lawful.

In addition, the Registrant may advance money to a director, officer or other individual for the costs, charges and expenses of a proceeding referred to above, but the individual shall repay the Registrant if the individual does not fulfil the conditions set out in (i) and (ii) above.

If the Registrant becomes liable under the terms of its by-laws, the insurance coverage discussed above will extend to its liability; however, each claim will be subject to a per claim retention of nil to CA\$250,000, depending on the nature of the claim.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, may be permitted to directors, officers or persons controlling the Registrant pursuant to the foregoing provisions, the Registrant has been informed that in the opinion of the Securities and Exchange Commission, such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.

Item 7. Exemption from Registration Claimed

Not applicable.

Item 8. Exhibits

The following exhibits have been filed as part of this Registration Statement.

| Exhibit Number | Description |
|-------------------|---|
| 4.1 | Articles of Incorporation (incorporated by reference to Exhibit 4.1 from Form S-8 (File No. 333-191383) filed with the Commission on September 25, 2013) |
| <u>4.2</u> | Amended and Restated General By-Law (incorporated by reference to Exhibit 99.1 from Form 6-K (File No. 001-35776) filed with the Commission on February 21, 2017) |
| 4.3 | Advance Notice bylaw No. 2013-1 (incorporated by reference to Exhibit 4.3 from Form S-8 (File No. 333-191383) filed with the Commission on September 25, 2013) |
| <u>4.4</u> | Specimen Certificate for Common Shares of Acasti Pharma Inc. (incorporated by reference to Exhibit 2.1 from Form 20-F (File No. 001-35776) filed with the Commission on June 6, 2014) |
| 4.5 | Equity Incentive Plan, as amended June 8, 2017 (incorporated by reference to Exhibit 4.2 from Form 20-F (File No. 001-35776) filed with the Commission on June 27, 2017) |
| <u>4.6</u> | Stock Option Plan, as amended June 8, 2017 (incorporated by reference to Exhibit 4.3 from Form 20-F (File No. 001-35776) filed with the Commission on June 27, 2017) |
| <u>5.1</u> | Opinion of Osler, Hoskin & Harcourt LLP |
| <u>23.1</u> | Consent of KPMG LLP |
| <u>23.2</u> | Consent of Osler, Hoskin & Harcourt LLP (included in Exhibit 5.1) |
| <u>24.1</u> | Power of attorney (included on signature page hereto) |

Item 9. Undertakings

- (a) The undersigned Registrant hereby undertakes:
- (1) To file, during any period in which offers or sales are being made, a post-effective amendment to this Registration Statement:
- (i) To include any prospectus required by Section 10(a)(3) of the Securities Act;
- (ii) To reflect in the prospectus any facts or events arising after the effective date of the Registration Statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the Registration Statement. Notwithstanding the foregoing, any increase or decrease in volume of the securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective Registration Statement; and
- (iii) To include any material information with respect to the plan of distribution not previously disclosed in the Registration Statement or any material change to such information in the Registration Statement;

PROVIDED, HOWEVER, that paragraphs (a)(1)(i) and (a)(1)(ii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Commission by the Registrant pursuant to section 13 or section 15(d) of the Exchange Act that are incorporated by reference in the Registration Statement.

- (2) That, for the purpose of determining any liability under the Securities Act, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.
- (b) The Registrant hereby undertakes that, for purposes of determining any liability under the Securities Act, each filing of the Registrant's annual report pursuant to section 13(a) or section 15(d) of the Exchange Act that is incorporated by reference in the Registration Statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial *bona fide* offering thereof.
- (c) Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the Commission such indemnification is against public policy as expressed in the Securities Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the city of Laval, Province of Québec, Canada, on this 21st day of September, 2018.

ACASTI PHARMA INC.

By: /s/ Janelle D'Alvise
Name: Janelle D'Alvise
Title: Chief Executive Officer

POWERS OF ATTORNEY

Each person whose signature appears below constitutes and appoints Janelle D'Alvise, Linda P. O'Keefe and Pierre Lemieux, or any of them, his true and lawful attorneys-in-fact and agents, each of whom may act alone, with full powers of substitution and resubstitution, for him and in his name, place and stead, in any and all capacities, to sign any or all amendments to this Registration Statement, including post-effective amendments, and to file the same, with all exhibits thereto, and other documents and in connection therewith, with the U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he might or could do in person, and hereby ratifies and confirms all his said attorneys-in-fact and agents or any of them or his substitute or substitutes may lawfully do or cause to be done by virtue hereof. This Power of Attorney may be executed in multiple counterparts, each of which shall be deemed an original, but which taken together shall constitute one instrument.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed below by the following persons in the capacities indicated on the dates indicated.

| Signature | Title | Date |
|--|--|--------------------|
| Janelle D'Alvise Janelle D'Alvise | President, Chief Executive Officer and Director (Principal Executive Officer) | September 21, 2018 |
| /s/ Linda P. O'Keefe Linda P. O'Keefe | Chief Financial Officer (Principal Financial and Accounting Officer) | September 21, 2018 |
| /s/ Dr. Roderick N. Carter Dr. Roderick N. Carter | Director and Chairman of the Board | September 21, 2018 |
| /s/ Jean-Marie (John) Canan Jean-Marie (John) Canan | Director | September 21, 2018 |
| /s/ Donald Olds Donald Olds | Director | September 21, 2018 |

AUTHORIZED REPRESENTATIVE

Pursuant to the requirements of Section 6(a) of the Securities Act of 1933, as amended, the undersigned has signed this Registration Statement, solely in the capacity of the duly authorized representative of Acasti Pharma Inc. in the United States, in the City of New York, State of New York, on September 21, 2018.

ACASTI PHARMA INC.

By: /s/ Janelle D'Alvise

Name: Janelle D'Alvise

Title: Chief Executive Officer

September 21, 2018

Acasti Pharma Inc. 545 Promenade de Centropolis Suite 100 Laval, Quebec Canada H7T 0B3

Dear Sirs/Mesdames:

Registration Statement on Form S-8

We have acted as Canadian counsel to Acasti Pharma Inc. (the "Corporation"), a corporation governed by the *Business Corporations Act (Quebec)*, in connection with the Registration Statement on Form S-8 (the "Registration Statement") filed by the Corporation on or about September 21, 2018 with the U.S. Securities and Exchange Commission under the U.S. Securities Act of 1933, as amended, relating to the issuance by the Corporation of up to 5,494,209 common shares of the Corporation (the "Shares") pursuant to the plan listed on the cover of the Registration Statement (the "Plan").

We have examined (a) the Registration Statement and (b) the Plan. We have also examined such public and corporate records, certificates and other documents and conducted such other examinations as we have considered necessary or relevant for the purposes of this opinion.

In giving this opinion, we have assumed the legal capacity of all individuals, the genuineness of all signatures, the authenticity of all documents submitted to us as originals and the conformity to authentic original documents of all documents submitted to us as certified, conformed, photostatic or facsimile copies.

In expressing this opinion, we have relied upon certified copy of the resolutions of the board of directors of the Corporation dated July 31, 2018.

On the basis of the foregoing, we are of the opinion that when the Shares shall have been issued as contemplated in the Plan, including the receipt by the Corporation of the consideration therefor, the Shares will be validly issued, fully paid and non-assessable.

We express no opinion herein as to any laws or any matters governed by any laws other than the laws of the Province of Quebec and the federal laws of Canada applicable therein.

We hereby consent to the filing of this opinion as an exhibit to the Registration Statement. In giving such consent, we do not thereby admit that we are included in the category of persons whose consent is required under Section 7 of the U.S. Securities Act of 1933, as amended, or the rules and regulations of the Securities and Exchange Commission thereunder.

Yours very truly,

/s/ Osler, Hoskin & Harcourt LLP

Osler, Hoskin & Harcourt LLP



KPMG LLP 600 de Maisonneuve Blvd. West Suite 1500, Tour KPMG Montréal (Québec) H3A 0A3 Canada Telephone (514) 840-2100 Fax (514) 840-2187 Internet www.kpmg.ca

EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Board of Directors of Acasti Pharma Inc.

We consent to the use of our report dated June 27, 2018, with respect to the statements of financial position as at March 31, 2018 and 2017 of Acasti Pharma Inc., the related statements of earnings and comprehensive loss, changes in equity and cash flows for the periods ended March 31, 2018, March 31, 2017 and February 29, 2016, and the related notes (collectively the "financial statements"), incorporated by reference herein, which report appears in the March 31, 2018 annual report on Form 20-F of Acasti Pharma Inc.

Our report dated June 27, 2018 contains an explanatory paragraph that states that Acasti Pharma Inc. has incurred operating losses and negative cash flows from operations since inception, that its current assets are projected to be significantly less than what will be needed, and that it needs to obtain additional financing, which indicate the existence of a material uncertainty that casts substantial doubt about its ability to continue as a going concern. The financial statements do not include any adjustments that may be necessary if the going concern basis was not appropriate.

Our report dated June 27, 2018 also contains an explanatory paragraph that states that the financial statements of Acasti Pharma Inc. as at February 28, 2017 and for the twelve-month and one-month periods ended February 28, 2017 and March 31, 2017 respectively are unaudited. Accordingly, we do not express an opinion on them.

/s/ KPMG LLP

September 21, 2018

Montréal, Canada

*CPA auditor, CA, public accountancy permit No. A122596

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KPMG Canada provides services to KPMG LLP.